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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/724,224	12/01/2003	Takashi Miyajima	245965US2	9751
22850	7590	08/04/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			DEO, DUY VU NGUYEN	
			ART UNIT	PAPER NUMBER
			1765	
DATE MAILED: 08/04/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,224

Applicant(s)

MIYAJIMA, TAKASHI

Examiner

DuyVu n. Deo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/1/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (US 6,690,054).

Lin describes a method for forming a capacitor comprising: forming an insulating layer 70 (col. 10, line 18-21); patterning the insulating layer to form openings (claimed forming a plurality of openings in the insulating film that open toward an upper surface of the insulating film) (col. 10, line 22-26); forming a Ru film (claimed electrode film) on the surface of the openings and upper surface of the insulating film (col. 10, line 27-34); etching back the Ru by method including RIE (claimed dry etching) to form a storage electrode in the openings (col. 10, line 38-45); wet etching the insulating film 70 (this would read on claimed performing wet etching on said storage electrode since the storage electrode is exposed to the wet etching) (col. 10, line 46-50); forming a tantalum oxide on the storage electrode (claimed dielectric layer) (col. 10, line 66-67); forming a Ru (claimed plate electrode) on the tantalum oxide (col. 11, line 11-20).

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3. Claim 2 is rejected under 35 U.S.C. 102(b) as being anticipated by Iijima et al. (JP 2002-124649).

Iijima describes a method for forming a capacitor comprising: forming a silicon oxide film 24 (claimed insulating layer) (paragraph [0035]); etching the silicon oxide to forming openings (paragraph [0037]); forming a Ru electrode film on the surface of the openings and the silicon oxide (paragraph [0040]); performing a heat treatment in NH₃ (this would provide and read on claimed hydrogen atmosphere) on the Ru electrode film (paragraph [0041-0042]); dry etching back the Ru electrode film to form a storage electrode in the openings (paragraph [0043]); forming a tantalum oxide dielectric film on the storage electrode (paragraph [0044]); forming a Ru plate electrode on the tantalum oxide film (paragraph [0047]).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes et al. (US 2003/0025142) and Morgan (US 2004/0029392).

Rhodes describes a method for forming a capacitor comprising: forming an oxide dielectric layer (paragraph [0034]); forming openings in the oxide layer (paragraphs [0035]); forming an electrode material on the surface of the openings and the oxide layer (paragraph [0038]); polishing the electrode material from above with an abrasive to remove the electrode

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material on the upper surface of the oxide layer to form storage electrode in the openings (paragraph [0040]); performing a heat treatment in NH₃ (this would provide and read on claimed hydrogen atmosphere); forming a capacitor dielectric layer on the storage electrode (paragraph [0043]); forming a plate electrode on the capacitor dielectric layer (paragraph [0045]). Unlike claimed invention, Rhodes doesn't teach removing the abrasive that adheres to the substrate after the polishing step. Morgan teaches to clean the substrate after polishing of the electrode material during the process of forming the capacitor (paragraphs [0003,0007,0013]). It would have been obvious for one skilled in the art to modify Rhodes in light of Morgan's teaching by cleaning the substrate after polishing the electrode material because Morgan suggests that contaminants after CMP needs to be cleaned from the substrate (paragraph [0007]).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DuyVu n. Deo whose telephone number is 571-272-1462. The examiner can normally be reached on 6:00-2:30 Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Primary Examiner

Duy-Vu N. Deo

8/1/05

